

# Sea Otter Mortality

**High frequency and variety of fatal infectious diseases in southern sea otters may jeopardize recovery of this threatened population.**



Examination of southern sea otter carcasses by USGS scientists from 1992 through 1998 yielded alarming results. More than 40 percent of the animals died from parasitic, fungal, or bacterial infections, an unusual finding in terms of both frequency and variety for wildlife species. The most common infectious diseases identified were peritonitis caused by abnormal migration of acanthocephalan parasites (*Profilicollis* spp.), protozoal encephalitis, a parasitic disease that causes inflammation of the brain (due to *Sarcocystis neurona* and *Toxoplasma gondii*), and a variety of systemic or severe bacterial infections. The unexpected pattern of infectious disease lead to speculation that an underlying problem might be making the otters more vulnerable.

Toxicologic analyses for two classes of marine contaminants with immunosuppressive properties (butyltins and organochlorine compounds) were performed by scientists at Michigan State University on tissues from a limited number of dead adult sea otters. The tests showed elevated levels of butyltins and geographically localized exposure to polychlorinated biphenyls (PCBs). Otters that died from infectious diseases contained higher concentrations of butyltins. This finding suggests a potential link between marine contaminants and infectious disease. However, further research is needed to understand how contaminants and disease might interact to affect otter mortality.

The southern sea otter, a California coastal species, was listed as threatened by the U.S. Fish and Wildlife Service in 1977. Although this population increased since the late 1970s, the rate of recovery has been slower than expected and surveys indicate the population has declined substantially since 1995. Concern that high mortality was hindering population recovery led to an effort begun in 1992 by the USGS National Wildlife Health Center to document the causes of death in southern sea otters.

The USGS continues to participate in monitoring causes of death in south-

ern sea otters and is beginning studies in collaboration with the California Department of Fish and Game to investigate the significance of these disease and contaminant findings. Findings will be correlated with status and trends in the southern sea otter population, and will be used to identify methods to control disease and reduce environmental contaminant exposure in order to assist in the recovery of this threatened species.

Research objectives include 1) determination of the role of infectious diseases and other mortality factors in the population's slow recovery and recent decline, 2) continued monitoring for newly emerging disease or other mortality factors, 3) examination of the health status of live otters, 4) determination of the transmission cycle of important diseases and any contributing role of contaminants, 5) identification of important sources of disease agents and contaminants, and 6) formulation of strategies to reduce disease and contaminant problems.

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